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Spots available at the WebGro Training Workshops

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The genetic yield potential of soybeans in the Midwestern United States is estimated to be approximately 100 bushels per acre, based on results from small-plot studies. However, field and statewide average yields are much lower. Soybean yield is the result of complex interactions between genetics, management, environment, fertility, and stresses. Water stress is often viewed as the biggest underlying factor resulting in yield loss. However, other factors such as soybean cyst nematodes, Rhizoctonia root rot, and hail damage can also cause significant injury to soybean yields. Although herbicide injury has been shown not to affect yields significantly, it can contribute to yield loss if other stresses are present. Producers can use management to alter the effect of interactive stresses, variety selection to reduce the impacts of diseases, and irrigation to reduce the effects of water stress. However, it is often difficult for producers to understand these complex interactions and to determine how much each factor may affect soybean yield.

Crop models, such as CROPGRO have been used as a research tool to study different interactions and to estimate the effects of different factors on soybean yield. CROPGRO is a process-oriented soybean model that simulates growth and development on a daily basis using carbon, nitrogen, and water balance principles. The model computes daily photosynthesis based on temperature, water stress, and light interception. Daily carbon is then partitioned to leaf, stem, root, pod and seed pools, based on the crop growth stage and on carbon supply-demand principles. Development rate is simulated each day, based on temperature and day length. Soil water content is computed in different soil layers each day, using a water balance approach; water stress is computed based on the limitation of potential root water uptake and evaporative demand.

WebGro is a Web-based soybean decision support system (DSS) built on the CROPGRO-Soybean model. The purpose of WebGro is to help soybean producers in the Midwestern United States to understand how different stresses interact to limit soybean yield in their fields. Stresses include water, soybean cyst nematode, herbicide injury, Rhizoctonia root rot disease, and hail damage. The user can set up a field scenario by selecting cultivar, planting date, plant population, soil type, and the nearest weather station using a web form. Different stress levels can then be entered and the model can be run interactively, by simulating the effects of one or more stresses at a time. The user can evaluate the yield loss relative to running the model with all stresses turned off (yield potential) to determine the effect of different combinations of stresses on yield. WebGro is available at http://webgro.ae.iastate.edu.

Workshops

The Iowa Soybean Promotion Board has funded a one-year pilot project to provide WebGro training to approximately 100 crop consultants, extension specialists, agribusiness professionals, and producers. The purpose of these workshops is to provide training and obtain feedback from users, in order to enhance the software in the future.

Registration

There is no registration cost and there is a possibility to receive 2 CCA credits for the workshop. All participants must register using the attached application form. Due to space limitations, we will select the first 20 applications for each workshop. Upon accepting your application, we will mail you details about meeting location and background reading on WebGro. Participants are encouraged to explore WebGro at http://webgro.ae.iastate.edu before the workshop.

Workshop Location and Dates

Date	Town	Time
Jan. 6, 2004	Sheldon, IA	4:00-6:00 pm
Jan. 15, 2004	Mason City, IA	4:00-6:00 pm
Jan. 16, 2004	Waterloo, IA	4:00-6:00 pm

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